

1. (Original) An improved apparatus for wind powered transportation comprising:
transportation means;
single layer, inherently stable and powerful aerodynamic means capable of flying without surface discontinuity, bridles, or rigid structure and having a centerline, wingtips, and a tail corner;
attachment means linking aerodynamic means to transportation means whereby aerodynamic means function and transportation means motion are thereby controlled.
2. (Original) The apparatus of claim 1, wherein the aerodynamic means further comprises a light weight, three dimensional wing comprising a plurality of gores of predetermined geometries, and defining a large diameter self-supporting rolled-over leading edge of an airfoil, a trailing edge, a nose, an inside windward surface, and an outside leeward surface, wherein all stresses within the wing resulting from aerodynamic forces, gravity, and transient forces due to inertia are converted into tensile stress within the wing and into pure tension transferred to the attachment means, and wherein the wing profile of the wing approaching the trailing edge exhibits increasing convexity.
3. (Original) The apparatus of claim 1, wherein the aerodynamic means further comprises a molded single continuous sheet of

material, defining a large diameter self-supporting rolled-over leading edge of an airfoil, a trailing edge, a nose, wingtips, tail corner, an inside windward surface, and an outside leeward surface, wherein all stresses within the wing resulting from aerodynamic forces, gravity, and transient forces due to inertia are converted into tensile stress within the wing and into pure tension transferred to the attachment means, and wherein the wing profile of the wing approaching the trailing edge exhibits increasing convexity.

4. (Original) The apparatus of claims 2 or 3, wherein the attachment means further comprises a least one flexible line with two ends, one end affixed to the transportation means and the other end affixed to the aerodynamic means.
5. (Original) The apparatus of claims 2 or 3, wherein the attachment means further comprises three flexible lines, each line comprising two ends, wherein three line ends are affixed to specific control points on the transportation means and the other three line ends are affixed to the aerodynamic means at unique points on the periphery of the wing.
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)

9. (Cancelled)
10. (Cancelled)
11. (Original) An improved apparatus for wind assisted watercraft comprising:

watercraft means comprising sail handling means;

a single layer, inherently stable and powerful light weight, three dimensional wing having a centerline, wingtips, and a tail corner;

three flexible flying lines of predetermined adjustable length each comprising two ends, wherein for each flying line one end is affixed to a unique point on the periphery of the wing and the other end is affixed to the sail handling means.

12. (Original) The apparatus of claim 11, wherein the three dimensional wing further comprises a plurality of gores of predetermined geometries, defining a large diameter self-supporting rolled-over leading edge of an airfoil, a trailing edge, a nose, an inside windward surface, and an outside leeward surface, wherein all stresses within the wing resulting from aerodynamic forces, gravity, and transient forces due to inertia are converted into tensile stress within the wing and into pure tension transferred to watercraft means via the flying lines, and wherein the wing profile of the wing approaching the trailing edge exhibits

increasing convexity.

13. (Original) The apparatus of claim 11, wherein the three dimensional wing further comprises molded single continuous sheet of material, defining a large diameter self-supporting rolled-over leading edge of an airfoil, a trailing edge, a nose, an inside windward surface, and an outside leeward surface, wherein all stresses within the wing resulting from aerodynamic forces, gravity, and transient forces due to inertia are converted into tensile stress within the wing and into pure tension transferred to watercraft means the flying lines, and wherein the wing profile of the wing approaching the trailing edge exhibits increasing convexity.
14. (Original) The apparatus of claims 12 or 13, wherein the flying lines further define three axes in relation to the wing and watercraft means, and wherein roll and pitch, attitude, altitude, flying speed, angle of attack, internal pressure, and gross shape of the wing, and airflow within, are controlled by independent manipulation of flying line length.
15. (Original) The apparatus of claim 12, wherein the plurality of gores are secured and connected to form the three dimensional wing by first adhesively securing jointures between edge-to-edge gores using double-sided adhesive means, then sewn using flat overlapping seams and a zigzag

sewing stitch.

16. (Original) The apparatus of claim 14, wherein the three dimensional wing further comprises at least one variously shaped and sized enclosure containing a lighter than air gaseous mixture.
17. (Original) The apparatus of claim 16, wherein each enclosure is torpedo shaped comprising a lightweight, gas impermeable material attached to the wing's centerline or near its nose on the wing's inside surface, and wherein the wing is rendered neutrally or negatively buoyant in air by the enclosure(s).
18. (Original) The apparatus of claim 17, wherein the aerodynamic means or wing comprises two conjoined vaults or lobes of material with a projecting angle, or groin, between the two characteristically running partly or completely along the centerline.
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Cancelled)

27. (Cancelled)
28. (Cancelled)
29. (Cancelled)
30. (Cancelled)
31. (Original) An improved apparatus for wind assisted

watercraft comprising:

watercraft means comprising sail handling means;

a single layer, inherently stable and powerful light weight,
three dimensional wing having a centerline, two wingtips,
and a tail corner, and wherein the three dimensional wing
further comprises a plurality of gores of predetermined
geometries, defining a large diameter self-supporting
rolled-over leading edge of an airfoil, a trailing edge, a
nose, an inside windward surface, and an outside leeward
surface, and wherein the wing profile of the wing
approaching the trailing edge exhibits increasing convexity;
two flexible flying lines of predetermined adjustable length
each comprising two ends, wherein one flying line end is
affixed to a unique point on the periphery of one wingtip
and the other end is affixed to the sail handling means, and
the other flying line end is affixed to a unique point on
the periphery of the other wingtip and the other end is
affixed to the sail handling means, and wherein all stresses
within the wing resulting from aerodynamic forces, gravity,

and transient forces due to inertia are converted into tensile stress within the wing and into pure tension transferred to watercraft means the flying lines.

32. (Original) An improved apparatus for wind assisted watercraft comprising:

watercraft means comprising sail handling means;

a single layer, inherently stable and powerful light weight, three dimensional wing having a centerline, two wingtips, and a tail corner, and wherein the three dimensional wing further comprises molded single continuous sheet of material, defining a large diameter self-supporting rolled-over leading edge of an airfoil, a trailing edge, a nose, an inside windward surface, and an outside leeward surface, and wherein the wing profile of the wing approaching the trailing edge exhibits increasing convexity;

two flexible flying lines of predetermined adjustable length each comprising two ends, wherein one flying line end is affixed to a unique point on the periphery of one wingtip and the other end is affixed to the sail handling means, and the other flying line end is affixed to a unique point on the periphery of the other wingtip and the other end is affixed to the sail handling means, and wherein all stresses within the wing resulting from aerodynamic forces, gravity, and transient forces due to inertia are converted into

tensile stress within the wing and into pure tension transferred to watercraft means the flying lines.

33. (Cancelled)

34. (Cancelled)

35. (New) The apparatus of claim 4, wherein the transportation means consists of watercraft, marine structures, skis, sail boards, land vehicles, dirigibles, aircraft, satellites, space craft, and nano-scale vehicles.

36. (New) The apparatus of claim 5, wherein the transportation means consists of watercraft, marine structures, skis, sail boards, land vehicles, dirigibles, aircraft, satellites, space craft, and nano-scale vehicles.

37. (New) The apparatus of claim 35, wherein the flying lines further define three axes in relation to the wing and transportation means, and wherein roll and pitch, attitude, altitude, flying speed, angle of attack, internal pressure, and gross shape of the wing, and airflow within, are controlled by independent manipulation of flying line length.

38. (New) The apparatus of claim 36, wherein the flying lines further define three axes in relation to the wing and transportation means, and wherein roll and pitch, attitude, altitude, flying speed, angle of attack, internal pressure, and gross shape of the wing, and airflow within, are

controlled by independent manipulation of flying line length.

39. (New) The apparatus of claim 37, wherein the aerodynamic means further comprises at least one variously shaped and sized enclosure containing a lighter than air gaseous mixture.
40. (New) The apparatus of claim 38, wherein the aerodynamic means further comprises at least one variously shaped and sized enclosure containing a lighter than air gaseous mixture.
41. (New) The apparatus of claim 39, wherein each enclosure is torpedo shaped comprising a lightweight, gas impermeable material attached to the kite's centerline or near its nose on the kite's inside surface, and wherein the kite is rendered neutrally or negatively buoyant in air by the enclosure(s).
42. (New) The apparatus of claim 40, wherein each enclosure is torpedo shaped comprising a lightweight, gas impermeable material attached to the kite's centerline or near its nose on the kite's inside surface, and wherein the kite is rendered neutrally or negatively buoyant in air by the enclosure(s).
43. (New) The apparatus of claim 41, wherein the aerodynamic means comprises at least two conjoined vaults or lobes of

material with a projecting angle, or groin, between the two
characteristically running partly or completely along the
centerline.

44. (New) The apparatus of claim 42, wherein the aerodynamic
means comprises at least two conjoined vaults or lobes of
material with a projecting angle, or groin, between the two
characteristically running partly or completely along the
centerline.